IN THE CLAIMS:

None of the claims are amended at this time.

1. (Original) A method of improving etch selectivity of silicon nitride relative to an adjacent patterned organic DUV photoresist during plasma etching, comprising: reacting a surface of said patterned organic DUV photoresist with plasma species generated from a plasma source gas consisting essentially of at least one inorganic fluorine-comprising gas and sulfur dioxide (SO_2), wherein the molecular ratio of said inorganic fluorine-comprising gas to said sulfur dioxide ranges from about 50 : 1 to about 1 : 1, to produce a reacted DUV photoresist surface, whereby the etch rate of said organic DUV photoresist is slowed, while said silicon nitride exposed through said patterned organic DUV photoresist is etched.

2. (Original) The method of Claim 1, wherein the amount of sulfur dioxide (SO_2) present in said plasma source gas is varied during said etching of said silicon nitride.

3. (Original) The method of Claim 1, wherein one of said at least one inorganic fluorine-comprising gases is sulfur hexafluoride (SF_6).

4. (Original) The method of Claim 1, wherein one of said at least one inorganic fluorine-comprising gases is nitrogen trifluoride (NF_3).

5. (Original) The method of Claim 1, wherein said plasma source gas includes two inorganic fluorine-comprising gases.

6. (Original) The method of Claim 1, wherein a temperature of a substrate which includes said silicon nitride is between about 20°C and 100°C during exposure to said plasma etchant.

7. (Original) The method of Claim 6, wherein said temperature is between about 40°C and 60°C.

8. (Original) The method of Claim 1, wherein said silicon nitride etch rate is at least two times said organic DUV photoresist etch rate.

9. (Original) The method of Claim 1, wherein said patterned organic DUV photoresist has a thickness of less than about 4000 Å.

10. (Original) The method of Claim 1, wherein said exposing of the structure comprising said silicon nitride and said patterned organic DUV photoresist to said plasma etchant results in an etched inorganic substrate having a feature size less than 2500 Å.

11. (Original) The method of Claim 1, wherein said selectivity of said silicon nitride relative to said adjacent patterned organic DUV photoresist is greater than 1.5.

12. (Original) The method of Claim 11, wherein said selectivity is greater than about 2.0.

13. (Original) The method of Claim 1, wherein said plasma etchant is generated from a high density plasma.

14. (Original) The method of Claim 13, wherein said plasma density is at least 10^{11} e^-/cm^3.

15. (Original) A method of improving etch selectivity of silicon nitride relative to an adjacent patterned organic DUV photoresist during plasma etching, comprising: reacting a surface of said patterned organic DUV photoresist with plasma species generated from a plasma source gas

consisting essentially of at least one inorganic fluorine-comprising gas, sulfur dioxide (SO_2), and a diluent gas selected from the group consisting of Ar, Kr, Xe, and He, wherein the molecular ratio of said inorganic fluorine-comprising gas to said sulfur dioxide ranges from about 50 : 1 to about 1 : 1, to produce a reacted DUV photoresist surface, whereby the etch rate of said organic DUV photoresist is slowed, while said silicon nitride exposed through said patterned organic DUV photoresist is etched.

16. (Original) The method of Claim 15, wherein the amount of sulfur dioxide (SO_2) present in said plasma source gas is varied during said etching of said silicon nitride.

17. (Original) The method of Claim 15, wherein a molecular ratio of said inorganic fluorine-comprising gas to said diluent gas ranges from about 0.1 : 1 to about 10 : 1.

18. (Original) The method of Claim 15, wherein said diluent gas is argon (Ar).

19. (Original) The method of Claim 15, wherein said sulfur dioxide amount is about 2% - 20% by volume of said plasma source gas.

20. (Original) The method of Claim 19, wherein said sulfur dioxide amount is about 10% - 15% by volume of said plasma source gas.

21. (Original) The method of Claim 15, wherein said at least one inorganic fluorine-comprising gas amount is about 20% - 60% by volume of said plasma source gas.

22. (Original) The method of Claim 21, wherein said at least one inorganic fluorine-comprising gas amount is about 25% - 35% by volume of said plasma source gas.

23. (Original) The method of Claim 18, wherein said argon amount is about 20% - 60% by volume of said plasma source gas.

24. (Original) The method of Claim 23, wherein said argon amount is about 50% - 60% by volume of said plasma source gas.

25. (Original) The method of Claim 15, wherein one of said at least one inorganic fluorine-comprising gases is sulfur hexafluoride (SF_6).

26. (Original) The method of Claim 15, wherein one of said at least one inorganic fluorine-comprising gases is nitrogen trifluoride (NF_3).

27. (Original) The method of Claim 15, wherein said plasma source gas includes two inorganic fluorine-comprising gases.

28. (Original) The method of Claim 27, wherein a total amount of said inorganic fluorine-comprising gases is about 20% - 60% by volume of the plasma source gas.

29. (Original) A method of improving etch selectivity of silicon nitride relative to an adjacent patterned organic DUV photoresist during plasma etching, comprising: reacting a surface of said patterned organic DUV photoresist with plasma species generated from a plasma source gas consisting essentially of at least one inorganic fluorine-comprising gas, sulfur dioxide (SO_2), and hydrogen bromide (HBr), wherein the molecular ratio of said inorganic fluorine-comprising gas to said sulfur dioxide ranges from about 50 : 1 to about 1 : 1, to produce a reacted DUV photoresist surface, whereby the etch rate of said organic DUV photoresist is slowed, while said silicon nitride exposed through said patterned organic DUV photoresist is etched.

30. (Original) The method of Claim 29, wherein the amount of sulfur dioxide (SO_2) present in said plasma source gas is varied during said etching of said silicon nitride.

31. (Original) The method of Claim 29, wherein said sulfur dioxide amount is about 2% - 20% by volume of said plasma source gas.

32. (Original) The method of Claim 31, wherein said sulfur dioxide amount is about 10% - 15% by volume of said plasma source gas.

33. (Original) The method of Claim 29, wherein said at least one inorganic fluorine-comprising gas amount is about 20% - 60% by volume of said plasma source gas.

34. (Original) The method of Claim 33, wherein said at least one inorganic fluorine-comprising gas amount is about 25% - 35% by volume of said plasma source gas.

35. (Original) The method of Claim 29, wherein said hydrogen bromide amount is about 10% - 60% by volume of said plasma source gas.

36. (Original) The method of Claim 35, wherein said hydrogen bromide amount is about 20% - 40% by volume of said plasma source gas.

37. (Original) The method of Claim 29, wherein one of said at least one inorganic fluorine-comprising gases is sulfur hexafluoride (SF_6).

38. (Original) The method of Claim 29, wherein one of said at least one inorganic fluorine-comprising gases is nitrogen trifluoride (NF_3).

39. (Original) The method of Claim 29, wherein said plasma source gas includes two inorganic fluorine-comprising gases.

40. (Original) The method of Claim 39, wherein a total amount of said inorganic fluorine-comprising gases is about 20% - 60% by volume of the plasma source gas.

41. (Original) A method of improving etch selectivity of silicon nitride relative to an adjacent patterned organic DUV photoresist during plasma etching, comprising: reacting a surface of said patterned organic DUV photoresist with plasma species generated from a plasma source gas consisting essentially of at least one inorganic fluorine-comprising gas, sulfur dioxide (SO_2), hydrogen bromide (HBr), and a diluent gas selected from the group consisting of Ar, Kr, Xe, and He, wherein the molecular ratio of said inorganic fluorine-comprising gas to said sulfur dioxide ranges from about 50 : 1 to about 1 : 1, to produce a reacted DUV photoresist surface, whereby the etch rate of said organic DUV photoresist is slowed, while said silicon nitride exposed through said patterned organic DUV photoresist is etched.

42. (Original) The method of Claim 41, wherein the amount of sulfur dioxide (SO_2) present in said plasma source gas is varied during said etching of said silicon nitride.

43. (Original) The method of Claim 41, wherein a molecular ratio of said inorganic fluorine-comprising gas to said diluent gas ranges from about 0.1 : 1 to about 10 : 1.

44. (Original) The method of Claim 41, wherein said diluent gas is argon (Ar).

45. (Original) The method of Claim 41, wherein said sulfur dioxide amount is about 2% - 20% by volume of said plasma source gas.

46. (Original) The method of Claim 45, wherein said sulfur dioxide amount is about 10% -15% by volume of said plasma source gas.

47. (Original) The method of Claim 41, wherein said at least one inorganic fluorine-comprising gas amount is about 20% - 60% by volume of said plasma source gas.

48. (Original) The method of Claim 47, wherein said at least one inorganic fluorine-comprising gas amount is about 25% - 35% by volume of said plasma source gas.

49. (Original) The method of Claim 41, wherein said hydrogen bromide amount is about 10% - 60% by volume of said plasma source gas.

50. (Original) The method of Claim 49, wherein said hydrogen bromide amount is about 20% - 40% by volume of said plasma source gas.

51. (Original) The method of Claim 44, wherein said argon amount is about 20% - 60% by volume of said plasma source gas.

52. (Original) The method of Claim 51, wherein said argon amount is about 50% - 60% by volume of said plasma source gas.

53. (Original) The method of Claim 41, wherein one of said at least one inorganic fluorine-comprising gases is sulfur hexafluoride (SF_6).

54. (Original) The method of Claim 41, wherein one of said at least one inorganic fluorine-comprising gases is nitrogen trifluoride (NF_3).

55. (Original) The method of Claim 41, wherein said plasma source gas includes two inorganic fluorine-comprising gases.

56. (Original) The method of Claim 55, wherein a total amount of said inorganic fluorine-comprising gases is about 20% - 60% by volume of the plasma source gas.

57. (Original) A method of improving etch selectivity of silicon nitride relative to an adjacent patterned organic DUV photoresist during plasma etching, comprising: reacting a surface of said patterned organic DUV photoresist with plasma species generated from a plasma source gas consisting essentially of sulfur hexafluoride (SF_6) and sulfur dioxide (SO_2), wherein the molecular ratio of said sulfur hexafluoride to said sulfur dioxide ranges from about 50 : 1 to about 1 : 1, to produce a reacted DUV photoresist surface, whereby the etch rate of said organic DUV photoresist is slowed, while said silicon nitride exposed through said patterned organic DUV photoresist is etched.

58. (Original) The method of Claim 57, wherein the amount of sulfur dioxide (SO_2) present in said plasma source gas is varied during said etching of said silicon nitride.

59. (Original) A method of improving etch selectivity of silicon nitride relative to an adjacent patterned organic DUV photoresist during plasma etching, comprising: reacting a surface of said patterned organic DUV photoresist with plasma species generated from a plasma source gas consisting essentially of sulfur hexafluoride (SF_6), sulfur dioxide (SO_2), and argon (Ar), wherein the molecular ratio of said sulfur hexafluoride to said sulfur dioxide ranges from about 50 : 1 to about 1 : 1, to produce a reacted DUV photoresist surface, whereby the etch rate of said organic DUV photoresist is slowed, while said silicon nitride exposed through said patterned organic DUV photoresist is etched.

60. (Original) The method of Claim 59, wherein the amount of sulfur dioxide (SO_2) present in said plasma source gas is varied during said etching of said silicon nitride.

61. (Original) The method of Claim 59, wherein a molecular ratio of said sulfur hexafluoride to said argon ranges from about 0.1 : 1 to about 10 : 1.

62. (Original) The method of Claim 59, wherein said sulfur dioxide amount is about 2% - 20% by volume of said plasma source gas.

63. (Original) The method of Claim 62, wherein said sulfur dioxide amount is about 10% -15% by volume of said plasma source gas.

64. (Original) The method of Claim 59, wherein said sulfur hexafluoride amount is about 20% - 60% by volume of said plasma source gas.

65. (Original) The method of Claim 64, wherein said sulfur hexafluoride amount is about 25% - 35% by volume of said plasma source gas.

66. (Original) The method of Claim 59, wherein said argon amount is about 20% - 60% by volume of said plasma source gas.

67. (Original) The method of Claim 66, wherein said argon amount is about 50% - 60% by volume of said plasma source gas.

68. (Currently Amended) A method of improving etch selectivity of silicon nitride relative to an adjacent patterned organic DUV photoresist during plasma etching, comprising: reacting a

surface of said patterned organic DUV photoresist with plasma species generated from a plasma source gas consisting essentially of sulfur hexafluoride (SF_6), sulfur dioxide (SO_2), and hydrogen bromide (HBr), wherein the molecular ratio of said inorganic fluorine-comprising gas to said sulfur dioxide ranges from about 50 : 1 to about 1 : 1, to produce a reacted DUV photoresist surface, whereby the etch rate of said organic DUV photoresist is slowed, while said silicon nitride exposed through said patterned organic DUV photoresist is etched.

69. (Original) The method of Claim 68, wherein the amount of sulfur dioxide (SO_2) present in said plasma source gas is varied during said etching of said silicon nitride.

70. (Original) The method of Claim 68, wherein said sulfur dioxide amount is about 2% - 20% by volume of said plasma source gas.

71. (Original) The method of Claim 70, wherein said sulfur dioxide amount is about 10% - 15% by volume of said plasma source gas.

72. (Original) The method of Claim 68, wherein said sulfur hexafluoride amount is about 20% - 60% by volume of said plasma source gas.

73. (Original) The method of Claim 72, wherein said sulfur hexafluoride amount is about 25% - 35% by volume of said plasma source gas.

74. (Original) The method of Claim 68, wherein said hydrogen bromide amount is about 10% - 60% by volume of said plasma source gas.

75. (Original) The method of Claim 74, wherein said hydrogen bromide amount is about

20% - 40% by volume of said plasma source gas.

76. (Original) A method of improving etch selectivity of silicon nitride relative to an adjacent patterned organic DUV photoresist during plasma etching, comprising: reacting a surface of said patterned organic DUV photoresist with plasma species generated from a plasma source gas consisting essentially of sulfur hexafluoride (SF_6), sulfur dioxide (SO_2), hydrogen bromide (HBr), and a diluent gas selected from the group consisting of Ar, Kr, Xe, and He, wherein the molecular ratio of said inorganic fluorine-comprising gas to said sulfur dioxide ranges from about 50 : 1 to about 1 : 1, to produce a reacted DUV photoresist surface, whereby the etch rate of said organic DUV photoresist is slowed, while said silicon nitride exposed through said patterned organic DUV photoresist is etched.

77. (Original) The method of Claim 76, wherein the amount of sulfur dioxide (SO_2) present in said plasma source gas is varied during said etching of said silicon nitride.

78. (Original) The method of Claim 76, wherein a molecular ratio of said inorganic fluorine-comprising gas to said diluent gas ranges from about 0.1 : 1 to about 10 : 1.

79. (Original) The method of Claim 76, wherein said diluent gas is argon (Ar).

80. (Original) The method of Claim 76, wherein said sulfur dioxide amount is about 2% - 20% by volume of said plasma source gas.

81. (Original) The method of Claim 80, wherein said sulfur dioxide amount is about 10% -15% by volume of said plasma source gas.

82. (Original) The method of Claim 76, wherein said sulfur hexafluoride amount is about 20% - 60% by volume of said plasma source gas.

83. (Original) The method of Claim 82, wherein said sulfur hexafluoride amount is about 25% - 35% by volume of said plasma source gas.

84. (Original) The method of Claim 76, wherein said hydrogen bromide amount is about 10% - 60% by volume of said plasma source gas.

85. (Original) The method of Claim 84, wherein said hydrogen bromide amount is about 20% - 40% by volume of said plasma source gas.

86. (Original) The method of Claim 79, wherein said argon amount is about 20% - 60% by volume of said plasma source gas.

87. (Original) The method of Claim 86, wherein said argon amount is about 50% - 60% by volume of said plasma source gas.